Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

General. (**Asset Code Fence Construction 72154013)**

The contractor shall supply and install approximately Two Thousand (2000) foot of chain link security fence for an area located at Link Farm off of Forks River Rd, New Johnsonville, TN 37134. This security fence and gates will be seventy-two (72) inches in height and continues from one (start) pre marked location to the (end) marked location. The contractor shall supply and install eight (8) 6-foot in length, 72-inches in height hinged style chain link gates with drop down link to close to center in four (4) locations. The fence and gates will feature a three-strand barb wire deterrent at a thirty-degree angle a-top the constructed fence.

Scope of Work.

Johnsonville Historic State Park / Link Farm

1.The contractor will provide and install approximately Two Thousand (2000) feet of 72-inch in height chain link security fence located at Link Farm managed by Johnsonville State Historic Park.

2. The contractor shall supply and install Eight (8) 6-foot in length, 72-inces in height hinged style chain link gates with drop down link to close to center in four (4) pre-marked locations.

3.The contractor will provide and install three (3) strands of deterrent barbwire a-top fence and all gates.

*All material will be the contractor's responsibility to provide any item that deviates from specs will have to receive pre-approval from WTRO personal.

* All bidders are advised to visit site to verify all conditions and dimensions. Locations will be pre-marked and measurements will be the responsibility of the contractor.

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

72" Chain Link Fence

Posts: 2 7/8" O.D. Terminal/End/Corner; 2 3/8" O.D. Line

Fabric: 9GA x 2" Mesh

Top rail: 1 5/8" O.D.

Middle Rail at Corner: 1 5/8" O.D

Barbed Wire 14ga, Class III

Post Caps: Barbed Wire Arms

Ties: 9GA Aluminum

Footings: Terminal & Gate posts 42" deep x 12"

Concrete: 3000 PSI

GALVANIZED CHAIN LINK FENCE AND GATES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. DIVISION 01 - GENERAL REQUIREMENTS: Drawings, quality, product and performance requirements, general and supplemental conditions apply as applicable to the project and project documents.

1.2 SUMMARY

A. This Section includes industrial/commercial chain link fence and gates specifications:

1. Galvanized steel coated chain link fabric
2. Galvanized steel framework and fittings
3. Gates: Cantilever slide & Swing gates
4. Barbed wire three strands
5. Installation

B. Related Sections:

1. 01 33 23 Shop Drawings, product data

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

2. 01 43 13 Manufacturers Qualifications
3. 03 30 53 Miscellaneous Cast in Place Concrete

1.3 REFERENCES

A. ASTM A121 Specification for Metallic-Coated Carbon Steel Barbed Wire
B. ASTM A392 Specification for Zinc-Coated Steel Chain-Link Fence Fabric
C. ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip galvanized Coatings
D. ASTM F552 Standard Terminology Relating to Chain Link Fencing
F. ASTM F567 Standard Practice for Installation of Chain Link Fence
G. ASTM F626 Specification for Fence Fittings
H. ASTM F1043 Specification for Strength and Protective Coatings of Steel Industrial Chain Link Fence Framework
I. ASTM F1083 Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
J. ASTM F1184 Specification for Industrial and Commercial Horizontal Slide Gates

1.4 SUBMITTALS

A. Material samples: When required, provide representative samples of chain link fabric, framework and fittings.
B. Specification Changes: May not be made after the date of bid.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

A. Framework, posts, rails, fabric, and fittings for chain link fence system:

2.3 ROUND STEEL PIPE FENCE FRAMEWORK [Specify option A. or B.]

A. Round steel pipe and rail: Schedule 40 standard weight pipe, in accordance with ASTM F1083, 1.8 oz/ ft^2 (550 g/m^2) hot dip galvanized zinc exterior and 1.8 oz/ft^2 (550 g/m^2) hot dip galvanized zinc interior coating.

Regular Grade: Minimum steel yield strength 30,000 psi (205 MPa)

High Strength Grade: Minimum yield strength 50,000 psi (344 MPa)

[Specify Grade: Regular or High Strength]

1. Line post: 2" O.D., 40wt

2. End, Corner, Pull post 2 7/8" O.D, 40wt

3. Top, brace, bottom and intermediate rails, 1.660 in. OD, 40wt

2.4 TENSION WIRE

A. Metallic Coated Steel Tension Wire: 7 gauge core (0.177 in.) (4.50 mm) wire to complying with ASTM A824 Match coating type to that of the chain link fabric

1. Type II Zinc-Coated, ASTM A817 Class 5 - 2.0 oz/ft^2 (610 g/m^2)

2.5 BARBED WIRE

A. Metallic Coated Steel Barbed Wire: Comply with ASTM A-121,14 gauge round barbs spaced 5 inches (127 mm) on center. Class 3 zinc coated, High tensile.

B. 1. Coating Type Z - Zinc-coated: Strand wire coating Type Z, Class 3, 0.80 oz/ft^2 (254 g/m^2), barb coating 0.70 oz/ft^2 (215g/m^2).

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

2.6 FITTINGS

A. Tension and Brace Bands: Galvanized pressed steel complying with ASTM F626, minimum steel thickness of 12 gauge (0.105 in.) (2.67 mm), minimum width of 3/4 in. (19 mm) and minimum zinc coating of 1.20 oz/ft² (366 g/m²). Secure bands with 5/16 in. (7.94 mm) galvanized steel carriage bolts.

B. Terminal Post Caps, Line Post Barbed Wire Arms, Rail and Brace Ends, Boulevard Clamps, Rail Sleeves: In compliance to ASTM F626, pressed steel galvanized after fabrication having a minimum zinc coating of 1.20 oz/ft² (366 g/m²).

C. Truss Rod Assembly: In compliance with ASTM F626, 3/8 in. (9.53 mm) or 5/16" (7.94 mm) diameter steel truss rod with a pressed steel tightener, minimum zinc coating of 1.2 oz/ft² (366 g/m²), assembly capable of withstanding a tension of 2,000 lbs. (970 kg).

D. Tension Bars: In compliance with ASTM F626. Galvanized steel one-piece length 2 in. (50 mm) less than the fabric height. Minimum zinc coating 1.2 oz. /ft² (366 g/m²).

E. Barbed Wire Arms: In compliance with ASTM F626, pressed steel galvanized after fabrication, minimum zinc coating of 1.20 oz. /ft² (366 g/m²), capable of supporting a vertical 250 lb (113 kg) load. Type I – three strand 45 degree (0.785 rad) arm direction outward.

2.7 TIE WIRE and HOG RINGS

A. Basic commercial / industrial applications - specify 9-gauge core aluminum alloy ties and hog rings per ASTM F626.

2.10 HORIZONTAL SLIDE GATES

A. Cantilever Slide Gates: Made in accordance with ASTM F 1184 Type II Class 2, and in compliance with UL-325, and ASTM 2200.

B. Chain Link 2” Fabric: Galvanized After Weaving

C. Finish - choose one: Horizontal slide gates and posts shall match the coating type and color as that specified for the fence framework.

D. Gateposts, 4” O.D. (101.6 mm) schedule 40 weighing 9.11 lb/ft (13.6 kg/m).

2.11 Swing Gates

A. Match gate fabric to that of the fence system.

B. Gate frame shall be constructed of 2” O.D. Pipe

C. Gateposts shall be a minimum of 73mm (2-7/8 inch) O.D hot dip galvanized

Schedule 40 steel pipe, complying with ASTM F1083.

D. Protect welded joints by applying zinc-rich paint in accordance with ASTM

Practice A780.

E. Hardware: Provide hinges, latches permitting operation from both sides of gate,

and keepers for each gate leaf. Fabricate latches with integral eye openings for

padlocking; padlock shall be accessible from both sides of gate.

PART 3 EXECUTION

3.1 FRAMEWORK INSTALLATION

A. Posts: Posts shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 24 in. (609.6 mm) plus an additional 3 in. (76.2 mm) depth for each 1 ft. (305 mm) increase in the fence height over 4 ft. (1220 mm). Minimum footing diameter four times the largest cross section of the post up to a 4.00” (101.6 mm) dimension and three times the largest cross section of post greater than a 4.00” (101.6 mm) dimension. Top of concrete footing to be crowned

to shed water away from the post. Line posts installed at intervals not exceeding 10 ft. (3.05 m) on center.

B. Terminal posts: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m) and higher and for fences 5 ft. (1.5 m) in height not having a top rail. The horizontal brace rail and diagonal truss rod shall be installed in accordance with ASTM F567.

C. Tension wire: Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric. Tension wire to be stretched taut, independently and prior to the fabric, between the terminal posts and secured to the terminal post using a brace band. Secure the tension wire to each line post with a tie wire. Install the top tension wire through the barb arm loop.

3.2 CHAIN LINK FABRIC INSTALLATION

Chain Link Fabric: Install fabric to outside of the framework maintaining a ground clearance of no more than 2 inches (50 mm). Attach fabric to the terminal post by threading the tension bar through the fabric; secure the tension bar to the terminal post with tension bands and 5/16 in. (7.94 mm) carriage bolts spaced no greater than 12 inches (304.8mm) on center. Small mesh fabric less than 1 in. (25 mm), attach to terminal post by sandwiching the mesh between the post and a vertical 2 in. wide (50mm) by 3/16 in. (4.76 mm) galvanized steel strap using carriage bolts, bolted thru the bar, mesh and post spaced 15 in. (381 mm) on center. Chain link fabric to be stretched taut free of sag. Fabric to be secured to the line post with tie wires spaced no greater than 12 inches (304.8 mm) on center and to horizontal rail spaced no greater than18 inches (457.2 mm) on center. [Aluminum alloy tie wire shall be installed following ASTM F567: Wrap the tie around the post or rail and attached to a fabric wire picket on each side of the post or rail by twisting the tie wire around the fabric wire picket two full turns, cut off excess wire and bend over to prevent injury. Preformed 9 gauge power-fastened wire ties shall be installed following ASTM F626: Wrap the tie a full 360° around the post or rail and fabric wire picket, using a variable speed drill, twist the two ends together three full turns, cut off any excess wire and bend over to prevent injury. Secure the fabric to the tension wire by crimping hogs rings around a fabric wire picket and tension wire.

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

BARBED WIRE INSTALLATION

Barbed Wire: Stretched taut between terminal posts and secured in the slots provided on the line post barb arms. Attach each strand of barbed wire to the terminal post using a brace band. Type I barb wire arm with direction outward for installation of Type I arm.

3.4 GATE INSTALLATION

A. Swing gate should be installed to swing outward or inward and be plumb in the closed position with minimal ground clearance no more than . Lock should be accessible from both sides of the fence.

B. Horizontal Slide Gates: Install according to manufacturer's instructions and in accordance with ASTM F567. Gates shall be plum in the closed position, installed to slide with an initial pull force no greater than 40 lbs. (18.14 kg). Ground clearance shall be 3 in. (76 mm), grade permitting. Electrically operated gate installation must conform to ASTM F2200 and UL 325.

3.5 GATE INSTALLATION A. Swing Gates: Installation of swing gates shall be in compliance with ASTM F 567. Direction of swing shall be inward. Gates shall be plumb in the closed position having a bottom clearance of 75 mm (3 in.) above grade. The ground under the swing arc shall be graded to allow for operation

3.6 NUTS AND BOLTS

Bolts: Carriage bolts used for fittings shall be installed with the head on the secure side of the fence. All bolts shall be peened over to prevent removal of the nut.

3.7 CLEAN UP

Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

Protection:

This is a turnkey job. All aspects of this job will be left in a finished condition: All finish work, interior and exterior walls and trim, finish painting, caulking and final cleanup are included in this contract.

All bidders are advised to visit site to verify all conditions and dimensions. No allowances will be made by the agency due to any bidder neglecting to visit the site and verifying dimensions and conditions.

Contractor will be responsible for determining where all utilities are on the job site and care should be taken to protect the utilities from any damage caused by the demo/construction. This will include any underground utilities around the job site area. If damage occurs, it must be repaired within a 24-hour period from the time damage occurs.

Contractor will perform work on regular time and will invoice work time and material not to exceed the quoted price. Any variance in quote will be addressed with a representative of Facilities Management, West TN Regional Office (WTRO) before additional work or materials are supplied.

Work shall be scheduled to avoid any interference with normal operation of the park as much as possible. During the construction period, coordinate construction schedules and operations with the agency. **Work must be conducted during the normal business hours of Monday through Friday, 8:00 a.m. to 4:30 p.m. unless approval for an alternate schedule is arranged with Facilities Management.**

Successful contractor to schedule and attend a pre-construction conference where a pre-construction form will be signed by Facilities Management, Contractor and Park Manager or park representative before work can begin. Contractor must also schedule and attend a final inspection where a final inspection form will be signed by Facilities Management, Contractor and Park Manager or park representative before invoice will be paid.

Project will begin within 15 days of Purchase Order issuance and be complete within 15 days after project has begun, unless other agreement has been approved by Facilities Management, WTRO.

The contractor will protect areas adjacent to his work and will be required to repair any damage he may cause. Contractor will protect work of other trades. Contractor will correct any painting related damage by cleaning, repairing, or replacing, and refinishing as directed by Facilities Management.

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

Workmanship is to be warranted for not less than one year from date of final inspection. Materials will be warranted as per manufacturer's warranty.

All materials, equipment, and supplies are to be new and in good condition, UL listed when applicable, and all work accomplished in a manner acceptable to Facilities Management.

Submittals shall be required on all materials and must be presented for approval by the State of Tennessee representative whether it is Architect, Engineer, Designer, Park Manager, Facilities Manager, or Facilities Surveyor. If an Architect or Engineer or Certified, Licensed Designer, then it must contain their State Seal.

Clean up of the project site shall be the responsibility of the contractor. Contractor to assure that job site is clean of nails, debris, etc., at end of each day to ensure safety. Contractor will clean up and haul away all scrap when work is completed to an approved location off state property.

Contractor, employees, or sub-contractors shall be licensed, certified, or registered as required. They must be registered in the State of Tennessee Edison purchasing system.

The contractor shall have a Certificate of Insurance on file with Facilities Management. Contractor will have insurance as will protect the contractor from claims which may arise out of or result from the contractor's operations under the contract and for which the contractor may be held legally liable, whether such operations be by the contractor or by sub-contractor or by anyone directly or indirectly employed by any of them, or anyone associated with them for whose acts they may be liable. Sub-contractors must also be registered in the State of Tennessee Edison purchasing system, be listed on the bid application and must show proof of insurance and have workers compensation. Insurance requirements are listed below.

The State of Tennessee shall not be held liable for any damage, loss of property, or injury of personnel resulting from actions of the contractor and/or his/her sub-contractors or employees.

Contractor shall obtain all fees and permits required for project. Contractor shall have a copy of project specifications, permits, and certificate of insurance on project site at all times.

Contractor shall comply with all applicable codes, standards, and regulations in execution of project.

Project Name; Security Fence at Link Farm
Project Location; Johnsonville Historic State Park
Link Farm State Archaeological Area
Forks River Road
New Johnsonville, TN 37134

All work must conform to the state's current approved codes, such as the International Building Code. All electrical and plumbing must conform to the latest and most current codes. All Fire Marshall approved projects must have a Certificate of Occupancy issued at the completion of the project. All ADA projects must have approval of the State of Tennessee Facilities Design Coordinator and be in compliance with the latest ADA code at the completion of the project.

Invoice shall be submitted for payment within 10 days of project completion. A copy of the invoice shall be submitted to:

West TN Regional Office

21540 Natchez Trace Rd.

Wildersville, TN 38388

Email: susan.blankenship@tn.gov

Fax 731-968-5668

For scheduling contact: Rob Markum 731-412-7067, robert.markum@tn.gov

Facilities Manager: Steve O'Dell, 731-307-9716, steve.odell@tn.gov

*Note: Before the Contract resulting from this ITB is signed, the apparent successful proposer must be registered with the Department of Revenue for the collection of Tennessee sales and use tax. The State shall not approve a contract unless the proposer provides proof of such registration. The foregoing is a mandatory requirement of an award of a contract pursuant to this solicitation.